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ABSTRACT

The objective of the Instructional Support System for Occupational Education (ISSOE) Dissemination project was to identify alternative methods of, and develop prototype plans for, extended ISSOE dissemination and planning. Phase 1 activities included development of a conference series with individuals experienced in instructional systems, innovation, dissemination, and implementation: review of recent literature on educational innovation: and development of three different models for ISSOE dissemination and implementation. Findings of this phase of research tended to support the conclusion that it is possible to engineer program implementation through close attention to various aspects of (1) ISSOE (the innovation itself), (2) contextual factors which comprise the school organization, and (3) development of a specific implementation strategy based upon user and innovation characteristics. The literature review provided criteria for ISSOE implementation assessment. Three recommendations for ISSOE implementation were made: the State Education Department (SED) should continue to closely monitor ISSOE development and implementation, SED should implement and evaluate the efficiency and effectiveness of a variety of dissemination activities, and the systematic development and implementation of a comprehensive staff training program must be undertaken. (YLB)

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ISSOE DISSEMINATION PLANNING - PHASE I

FINDINGS AND RECOMMENDATIONS

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Final Report

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Project Director

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ISSOE DISSEMINATION PLANNING

PHASE I

FINDINGS AND RECOMMENDATIONS

INTRODUCTIONS

This report reviews the activities of the ISSOE Dissemination Phase I project, summarizes the major findings, and recommends possible dissemination and implementation activities which may be pursued by the State Education Department to ensure the vitality and acceptance of ISSOE products by occupational educators in New York State.

OBJECTIVES OF THE PROJECT

It is the overall objective of this project to identify alternative methods of, and develop prototype plans for, extended ISSOE dissemination and implementation. Specific activities and outcomes of the project include:

a. A review of the recent literature on educational innovation.

b. The development of a conference series with individuals experienced in instructional systems, innovation, dissemination, and implementation.

c. The development of options for three different models for ISSOE dissemination and implementation.

PROJECT ACTIVITIES

Phase I of the ISSOE Dissemination Project began on March 23, 1978. Dr. Vernon Beuke was assigned to direct the project. The first task was to develop the conference series. Priority was given to identifying researchers who held national and international recognition for their work in the study of innovation implementation.

COLLOQUIUM SERIES

Participants were selected from several academic disciplines. These were disciplines which have made major contributions to the study of adoption and implementation of innovation. Meetings were scheduled in April and May. Topics of mutual interest confronting the problems of implementing ISSOE were agreed upon and the meetings were advertised throughout the Field of Education by interoffice memoranda and by the Department newsletter.

Most of the seminars were scheduled for the noon hour in order to maximize attendance by faculty and students. Meetings were generally well attended with average attendance of approximately twenty-five persons.

Each colloquium was tape recorded and then rough-draft transcriptions were typed from the tape recordings. The rough-draft was edited for grammar and punctuation by the project staff and forwarded to the speakers for final editing. Abstracts of the papers were written from the rough-drafts and submitted to SED in June.

Some problems were experienced in obtaining final papers from the speakers. Final edited papers were slow in being returned due to prior commitments, summer vacations, etc. One speaker failed to return an edited paper before the end of the project as is noted on the final published document. Overall, the papers evidence high quality scholarship. The final collection is entitled *Implementing Change in Occupational Education: A Compendium of Resource Papers.*

Two hundred copies of the seminar papers have been printed for distribution to conference participants, faculty and staff, and occupational educators throughout New York State. Distribution to the latter group will be coordinated by the State Education Department.

LITERATURE REVIEW

Concurrent with the seminar series project staff reviewed the research literature on implementing new educational programs. Rather than attempting to review an immense and highly repetitious literature, the staff sought to assess the state of the art in educational innovation by (1) identifying and reviewing promising theories, important issues, and proven implementation strategies; (2) reviewing research directly related to the development and implementation of new vocational education programs; and (3) providing a distillation of the review of literature in the form of generalizations about innovations and organizations which have wide support by research. A selected bibliography was compiled during the literature review. We believe that most of the literature relevant to ISSOE implementation is presented or summarized in the cited works.

The literature review is entitled *A Review of the Change Literature With Implications for ISSOE Dissemination*. A first draft of the paper was distributed among State Education Department personnel and ISSOE field personel at the September 1978 Regional Coordinator's Meeting. Their comments and suggestions were solicited. One hundred additional copies of the final document have been printed for distribution by SED and the Institute.

PRESENTATIONS

Project staff made two presentations to the SED personnel. Preliminary findings of the research were presented to State Education Department personnel on July 27, 1978. At this meeting presentations were made by

Dr. James A. Dunn and Dr. Vernon Beuke. The Dunn presentation outlined a systems view of a comprehensive ISSOE program as it might appear in its implemented form. Three subsystems were identified as critical to ISSOE institutionalization. These included the classroom teaching-learning subsystem, the guidance subsystem, and a feedback subsystem.

Dr. Beuke's presentation reviewed the colloquium discussions and summarized the initial findings of the literature review. Abstracts of the rough-draft papers and copies of the final draft of Dr. John Bower's paper were distributed.

A second ISSOE planning session was attended by project staff on July 27, 1978 at Albany. Both Dunn and Beuke attended the planning session which addressed short-range planning issues, obtained feed-back from field representatives, and disseminated information on V-TECS program interpretation within the ISSOE project.

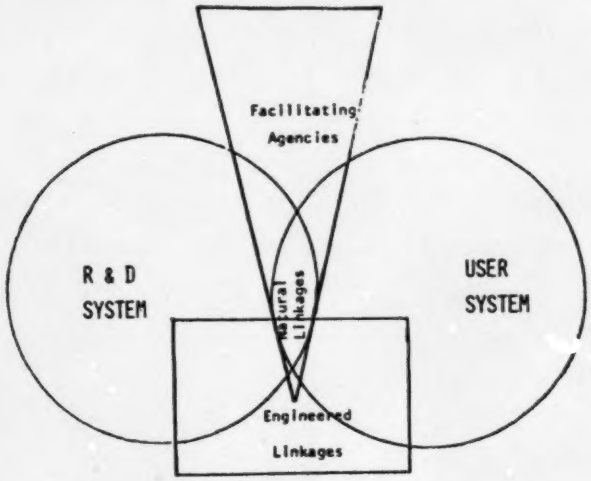
MODELS

The first presentation summarized major innovation research models including:

- o The Problem Solving Model,
- o The Research Development and Diffusion Model, and
- o The Sociological Model of Natural Diffusion.

The shortcomings of each model, when applied to educational institutions, were enumerated and discussed. A composite model was presented and its applications for ISSOE were discussed. This model, the Collaborative Networks Model is presented in Figure 1.

Figure 1 Collaborative Networks Model



The Collaborative Networks Model views the exchange of knowledge between those developing innovative products and those using these products as an information exchange problem. Three solutions to the problem of information exchange are available: natural linkages, the work of facilitating agencies , and engineered linkages. Natural linkages are those individuals who, by virtue of belonging to both groups, are able to act as intermediary between the two "cultures". Facilitating agencies are defined as more or less permanent organizations, usually external to both the Research and Development System and the User System, who have substantial influence over each by virtue of controlling vital resources or through a legal-supervisory relationship to both systems. Engineered linkages are those temporary, "add-on" type individuals or organizations which serve a specific purpose or purposes.

We believe the Collaborative Network model is a major improvement in representing visually the exchange of ideas, methods, and products among two or more groups or organizations. It is both normative and prescriptive.

It is normative in that it implies that all organizations use the products of external organizations and interact with those and other organizations. It is prescriptive in that it envisions the addition of engineered linkages to provide support, expertise, and resources to both the Research and Development Systems and User Systems.

A second advantage of the Collaborative Networks Model is to be found in the notion of monitoring the progress of the implementation effort. Clearly, the use of engineered linkages allows those responsible for implementation to monitor the effort, to make changes, and to fine tune based on evaluation and review data.

PRELIMINARY FINDINGS

The findings of this phase of the research would tend to support the conclusion that it is possible to engineer program implementation through close attention to various aspects of (1) ISSOE, i.e., the innovation itself, (2) the contextual factors which comprise the school organization, and (3) development of a specific implementation strategy based upon user and innovation characteristics. Our review of the literature provided criteria for ISSOE implementation assessment. These criteria are presented below and our impressions of the adequacy of ISSOE presented.

THE INNOVATION ITSELF

Several research studies, discussed more fully in the literature review, concluded that aspects of the innovation influence the adoption and implementation process. These are summarized under two main headings we call utility and adoptability. Generalizations* about these characteristics of innovation include:

*The following generalizations are taken from the literature review. The reader is referred to that paper for the sources used to compile the list.

Utility

a. Innovations requiring inordinate outlays of money, energy, or time by the implementing group or person are likely to be adopted slowly if at all.

b. The perceived compatibility of an innovation with an organization's goals and traditions is positively related to adoption.

c. An innovation must be perceived by the users as an improvement over existing methods.

Adoptability

a. The greater the complexity of the innovations, the less likely it will be implemented.

b. An innovation which can be readily observed will be implemented more readily.

c. An innovation must be malleable in ways that permit adopters to make adjustments based on local needs.

d. Innovations accompanied by supporting materials (training materials, manuals, teaching aids, etc.) will be implemented more easily.

e. Effective implementation of innovations is directly related to the extent to which the innovation is congruent with perceived needs of the user.

f. Advocacy of the innovation by credible individuals and groups increases chances of its use.

FINDINGS

Little hard data currently exists upon which to evaluate the ISSOE innovation with respect to utility and adoptability. Only two "evaluation" studies of the ISSOE project have been conducted to date. These studies by Dr. Millard Harmon (1977) and Dr. Marilyn Craig (1978) lend positive support to many of the above generalizations about the ISSOE innovation from the perspectives of SED administrators, ISSOE researchers, and regional coordinators. Neither, however, provide information from the actual or anticipated user's perspective.

CONTEXTUAL FACTORS

Our review of the literature on innovation institutionalization indicates that certain factors influence the implementation of innovations, regardless of the characteristics of the innovation per se. These include financial resources, human resources, the planning process, communication channels and patterns, and training. The following generalizations were supported by studies we reviewed.

Financial resources

a. Innovativeness varies directly with available money. Change should not be undertaken if the school system does not have the necessary financial and human resources to accept and sustain change.

b. Availability of funds influences the change process, but the motivation of the school system may have a strong effect.

Human resources

a. Innovation depends upon individuals within adopting organizations performing new tasks and taking on new roles.

b. A strong commitment to change based on perceived needs must exist in both the formal and informal school organization before an innovation will be successfully implemented.

c. Innovators tend to be in positions of authority and/or influence within the organization.

d. Hierarchical support will increase the likelihood of successful implementation.

e. Teachers will rely on their own experience for curriculum ideas rather use unfamiliar materials produced by others.

f. Teachers work best with and rely most on fellow teachers in information sharing.

g. Experience in past change programs and expectations for future programs influence the change process.

Planning

a. Planning facilitates innovation implementation, and where planning is more explicit and detailed, implementation is faster and more complete.

b. Involvement and participation in planning and decision-making by those affected by a change will positively influence the implementation process.

Communications

a. Face-to-face interaction and two-way communications are the most effective mode of conveying information.

b. Increased vertical and horizontal communications facilitate change.

c. Use of overloaded information channels will tend to hinder the change process.

Training

a. In-service training, provided on a regular schedule, contributes to effective use of an innovation.

b. Training activities, if effectively applied, increase the likelihood of successful implementation and continuation of innovative programs.

c. Training directly related to the practical application of the new innovation increases the chances of successful implementation.

Findings: The Harmon and Craig studies do provide some data to evaluate the ISSOE project on the above points. Again, however, we point out the serious problem that respondents were not users or anticipated users of the ISSOE program.

The Harmon (1977) study found that respondents were generally satisfied with current level of financial support. Respondents also thought the concept of performance-based occupational education was consistent with BOCES operations, although several respondents were unsure of the goals and objectives of the ISSOE project. Harmon considered communications and project administration as actual or potential problem areas. The Craig study supports these observations.

The Craig study indicates that the regional coordinators were generally satisfied with project implementation but specific problems were noted. These included SED program support, coordinator training and product quality.

Little is known about perceived characteristics of ISSOE from the perspective of local administrators or teachers. Practically nothing is known of student and parent perceptions of ISSOE or teacher satisfaction with planning, communication, and training.

DEVELOPMENT OF IMPLEMENTATION STRATEGY

Our review of the literature indicates that implementation strategies are numerous. We reviewed and outlined four major strategies found in the literature including:

- o the power strategy,
- o the re-educative strategy,
- o the manipulative strategy, and
- o the marketing technology strategy.

All have strengths and weaknesses, for specific application, which were pointed out in the review.

Findings: It would seem the ISSOE implementation strategy, to date, whether by chance or design, has incorporated the manipulative and re-educative strategies in various forms. Re-education has been conducted under the auspices of SED, CIOE, SUNY teacher training institutions, and regional coordinators. To our knowledge, most re-education has been in the form of in-service training for practicing educators. Workshops at the statewide, regional, and local levels have been used predominately, but some regional coordinators conducted weekly meetings which also served re-educative as well as communication purposes.

The manipulative strategy has been used in attempts to influence local schools, through fiscal and program support, to undertake ISSOE curriculum development and implementation. The extent to which the response has been and/or is, oriented toward local problem solving or "opportunism" is not known. The reason behind implementing/developing ISSOE curricula may be an excellent predictor of future institutionalization according to the Rand Study.

It would appear that many regional coordinators feel "in the dark" about implementation plans and strategies. Their experience and first-hand knowledge of the local schools would be invaluable in development of an implementation strategy. However obtained, a better understanding of local needs, interests, attitudes and priorities, must be developed by SED personnel before a specific strategy or combination of strategies can be developed to improve chances for ISSOE implementation.

RECOMMENDATIONS

The findings of this phase of the research indicate that implementation of competency-based vocational education is possible. The major determinants of implementation were enumerated above with the conclusion that insufficient information about critical aspects of ISSOE and the target-groups is currently available. Thus the recommendations which follow are intended to result in greater mutual understanding between those responsible for development and those who will ultimately use the product.

RECOMMENDATION NUMBER ONE

The State Education Department should continue to monitor the ISSOE development and implementation process very closely. Special attention should be given to collection of reliable data on the following issues:

curriculum validity, identification of instructional support needs, specification of new roles for teachers and students, and estimation of implementation costs at LEAs.

Curriculum validity of some ISSOE Program areas was a serious concern of several regional coordinators who responded to the Craig survey. Since job-related student competencies serve as a foundation for ISSOE, errors in specification may result in establishment of programs that lack validity. The goal of ISSOE seems to be identification of competencies which maximize the probability of on-the-job success. It is, therefore, a key issue which requires constant attention by ISSOE developers. A second, but related issue, is the establishment of priorities among identified competencies. Both of these issues require field testing and evaluation. ISSOE cannot, and probably should not, be fully implemented statewide until it has been evaluated by its several audiences. The introduction of V-TECS potentially further complicates the question of "perceived" validity.

Instructional support needs of teachers may exist for successful implementation and continuation of the ISSOE program. Respondents to the Craig survey indicated concern with the shift from traditional programs to ISSOE. One concern mentioned had to do with development of new modules, performance objectives, CRMS, etc. Associated with this problem was a lack of guidelines and models. Several mentioned the need for the student reporting system to ease teacher's record keeping overload. Guidance and counseling concerns for the ISSOE program have also been mentioned in meetings and conferences. These concerns, of course, are well known to those associated with ISSOE development and implementation. Two proposals submitted by the Cornell Institute address these crucial issues.

New roles for teachers and students should be explicity defined, to the extent possible. Mastery learning, individualized instruction, flexible entry/exit, and major changes in established grading systems add-up to major changes in classroom behavior for all involved. One may wrongly assume that

change will be relatively easy to effect. The fact is, some teachers and students may not be receptive to another "new" teaching scheme. For example, performance-based education may be seen by proponents as a panacea but antagonists may describe it, in the extreme, as "mechanistic and mindless." Further, students may not relish being out of step with their peers. Successful implementation will require explicit role delineation, mechanisms for role communication, and positive role adoption by participants.

The distribution of new curriculum materials has been a common strategy for attempting to influence teacher behavior. There is little evidence, however, that teachers are likely to change established practices, (especially those which are highly routinized to the point of being habitual,) by simply reading about a new practice or process. Behavioral change will require opportunities for teachers to exhibit the new behavior(s) under conditions of low personal and professional risk.

Estimation of implementation costs has not been addressed to our knowledge. One respondent to the Harmon study stated the belief that ISSOE may be extremely expensive. Aside from the traditional question of how much and who pays, there may be generalized negative feeling about spending money for new programs while cutting old ones. Cost comparison analysis should be made, especially vis-a-vis the desired goals and objectives of ISSOE. This implies a clear specification of the total range of perceived benefits to accrue to individuals and society as a result of the ISSOE system.

RECOMMENDATION NUMBER TWO

The State Education Department should implement a variety of dissemination activities and evaluate the efficiency and effectiveness of each.

It is evident from our review of the literature that mere dissemination of information to the field will not contribute significantly to ISSOE

implementation. A major flaw in most dissemination efforts appears to be an incongruence between the concerns of potential users and the information that is intended for their utilization. A second problem in information dissemination is the use of inappropriate channels to convey the message.

Messages to be transmitted: Hall (1974) has developed the Concerns-Based Adoption Model to represent the complex processes of innovation adoption. Seven levels of use are hypothesised which progress from unawareness to renewal. These stages of concern and use would suggest dissemination activities which would be most effective. Hall's stages and expressions of concern are outlined in Figure 2.

Figure 2 Hall's Stages of Concern

Stage of Concern	Expressions of Concern
Unaware	I don't know anything about it (the innovation).
Awareness	I have heard about the innovation, but I don't know much about it.
Exploration	How much of my time would use of this innovation take?
Early Trial	I seem to be spending all my time in getting material ready for students.
Limited Impact	I can now see how this innovation relates to other things I am doing.
Maximum Benefit	I am concerned about relating the effects of this innovation with what other instructors are doing.
Renewal	I am trying a variation in my use of the innovation that looks like it is going to result in even greater effects.

We have seen no printed communications (newsletters, brochures, etc.) directed to users which respond to concerns beyond stages one (unaware) and two (awareness). The extent to which Regional Coordinators and/or the State Education Department have responded systematically to other stages of concern is not known. Such materials should be developed as quickly as possible.

Channels: The use of printed materials such as direct-mailing of brochures and newsletters has been used to transmit a variety of messages to users. The predominant mode of communication has been face-to-face communications from regional coordinators, SED personnel, and teacher trainers. The content of the messages and their impact on the receivers is not known. The two studies of ISSOE implementation would indicate that regional coordinators may not understand some important aspects of ISSOE development and implementation. It is obvious that they cannot transmit that which they do not know. In as much as regional coordinators are the critical link in the ISSOE chain, they must be fully cognizant of the full range of ISSOE potentiality for meeting New York State occupational educator needs. They must be visionary with regard to ISSOE as well as knowledgable. They must be "trained to criterion".

Other channels of communication should be explored including demonstration of the product in actual use situations, teacher-consultant interactions, and possibly more sophisticated techniques such as personal assessment feed-back training using video tape recorders and/or expert observers. Faculty teaming of more experienced teachers with less experienced teachers is a potentially effective communication and training mode which should be investigated.

Materials, in various forms and levels of details, communicate the new technology and further serve as informative references which project staff utilize according to their personal styles and information needs. Care should be given to the development of the following types of materials:

- o Descriptive materials which tell about the major aspects of ISSOE and how these relate to the reader.
- o Instructional materials which contribute to classroom learning and interaction.
- o Teacher support materials supporting ISSOE instructors roles and objectives.

Research evidence suggests that personal communications are effective ways to stimulate interest and motivation. They do not, however, provide efficient modes of communication of technical details about ISSOE products and processes. Figure 3 presents an analysis of typical dissemination techniques by amounts of use and estimated effectiveness for program implementation. (This is not applicable to other activities in the dissemination process.) "Most Used" dissemination strategies have the advantage of being cheap and easy to produce and circulate. It is likely, however, that they are also the least cost-effective dissemination techniques. A carefully planned mix of the listed techniques would probably be optimally effective.

Figure 3

Extent of Use and Relative Effectiveness
of Several Dissemination Modes

USE	Extensively Used	Commonly Used	Rarely Used
EFFECTIVENESS	Low Effectiveness	Some Effectiveness	Most Effective
TECHNIQUE	Newsletters Brochures Bulletins Microforms	Personal Letters Person to Person Telephone Contacts Booklets Articles Exhibits	Manuals Films Recordings Group Meetings Self-Instruction Multi-Media

RECOMMENDATION NUMBER THREE

The systematic development and implementation of a comprehensive staff training program which focuses on providing appropriate skills, knowledge, and attitudes for ISSOE users must be undertaken.

Training should be provided for two ISSOE participant groups: regional coordinators and implementing teachers. Regional coordinators, according to the Craig study, perceived a need for further training in their roles as change agents. Responsibility for this training should be assigned to an SED Associate and/or contractor. This training must be specifically designed to show how one proceeds with implementation of ISSOE through cooperating teachers and administrators. Coordinators must be thoroughly versed in all major characteristics of the ISSOE program. Some training needs of Regional Coordinators may be met by existing curriculum materials (e.g. VECS, Havelock, or Becker and Hahn materials) through an independent study mode.

The second group of persons requiring training are the occupational teachers implementing ISSOE. Training of actual and potential teacher-users should include skill training and role training. The implementation of ISSOE requires acquisition of behaviors and skills which are likely to be quite different from those learned in colleges of education only a few years ago.

Various modes of training should be investigated. Rather than depending upon workshops and conferences, SED should begin now to locate or develop self-teaching, multi-media materials to provide field staff with (1) basic concepts of competency-based vocational education, (2) skills required of ISSOE teachers, and (3) role models for new behavior patterns congruent with ISSOE.

As a training mode, conferences, workshops, college courses, and similar activities appear to have a rather low rate of return for investment. Kievit (1975) believes this is due to the fact that such activities treat the teacher outside the environment where acquired behavior and skills will be used.

It is an indisputable fact that innovation cannot occur unless roles and behaviors change. The Rand Study of educational change indicated that provision of appropriate re-educative techniques was positively and significantly related to both implementation and continuation of innovative programs. The provision for ISSOE teacher training must be a high priority for the State Education Department.

SUMMARY

This paper reviewed the major activities of the ISSOE Dissemination-Phase I project, summarized the major findings, and made recommendations which may be pursued by the State Education Department to ensure the validity and acceptance of ISSOE products by occupational educators in New York State. The findings of the research would support the conclusion that it is possible to engineer program implementation through close attention to various aspects of (1) the innovation (ISSOE) itself, (2) contextual factors which comprise the school organization, and (3) development of a specific implementation strategy based upon user and innovation characteristics.

Three recommendations for ISSOE implementation were made. They include:

1. The State Education Department should continue to monitor the ISSOE development and implementation process very closely. Special attention should be given to collection of reliable data on the following issues: curriculum validity, identification of instructional support needs, specification of new roles for teachers and students, and estimation of implementation costs at LEAs.
2. The State Education Department should implement a variety of dissemination activities and evaluate the efficiency and effectiveness of each.
3. The systematic development and implementation of a comprehensive staff training program which focuses on providing appropriate skills, knowledge, and attitudes for ISSOE users must be undertaken.